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(81) 指定国(国家): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

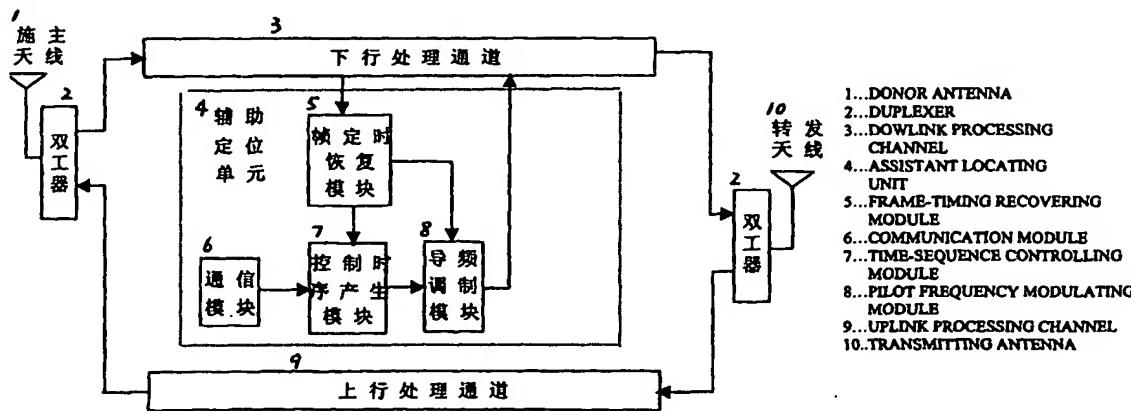
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本国际公布:
— 包括国际检索报告。

所引用双字母代码和其它缩写符号, 请参考刊登在每期 PCT公报期刊起始的“代码及缩写符号简要说明”。

(54) Title: A METHOD FOR LOCATING MOBILE STATION AND A REPEATER OF THE MOBILE STATION

(54) 发明名称: 一种移动台定位方法及其直放站



(57) Abstract: The present invention relates to a method for locating a mobile station and a repeater equipment. When the mobile communication network receives a locating request from the mobile station, it commands the repeater to emit an assistant locating signal, then the mobile station estimates its location basing on its measuring result which is calculated by an assistant locating signal from the repeater and a downlink signal from the base station. An assistant locating unit is added to the downlink processing channel of said repeater, and said assistant locating unit comprises: Communication Module, Frame-timing Recovering Module, Time-sequence, Controlling Module and Pilot Frequency Modulating Module. The present invention improves the locating precision of the mobile station when it is in the coverage of a repeater; and the present invention also offers an easily-achieved repeater which makes no affection on the existing mobile stations and signal flow.

(57) 摘要

本发明涉及一种移动台定位方法及其直放站。所述的方法为：移动通信网络收到移动台定位请求时，令直放站发射辅助定位信号，移动台根据所接收的直放站发射的辅助定位信号和基站发射的下行信号进行测量，然后根据测量结果进行位置估计，实现移动台的定位。所述的直放站为：在现有的直放站下行处理通道中增加辅助定位单元，辅助定位单元包括：通信模块、帧定时恢复模块、控制时序模块和导频调制模块。本发明实现了提高处于直放站覆盖区域的移动台的定位精度的发明目的；而且本发明提供的具有辅助定位功能的直放站实现简单，且不影响现有移动台的结构和信令流程。

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN03/00630

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04Q 7/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC,WPI,PAJ,CNPAT: MOBILE, LOCATING, BASE STATION, REPEATER

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 1228908 A (NOKIA Telecommunications), 15. Sep.1999 (15.09.99), Desc, page 3 – page 4, page 8	1,13
Y		2
Y	CN 1290458 A(Samsong Electronics Co.,LTD), 04. Apr. 2001(04.04.01), Abstract	2
PY	CN 1413057 A(HUAWEI TECHNOLOGIES Co.,LTD), 23. Apr. 2003(23.04.03), Abstract	2
A	WO 0065731 A1 (NCT LTD) , 02. Nov. 2000(02.11.00), whole document	1-22

Further documents are listed in the continuation of Box C. See patent family annex.

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- “O” document referring to an oral disclosure, use, exhibition or other means
- “P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search
18. Sep 2003(18.09.03)

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN03/00630

Patent document Cited in search report	Publication Date	Patent family member(s)	Publication date
CN 1228908 A	15. Sep.1999	FI 962972 A WO 9805172 A AU 3346997 A NO 990286 A EP 0976281 A AU 723037 A JP 2000515347 T US 6373833 A	26.01.1998 05..02.1998 20..02.1998 23..03.1999 02..02.2000 17. 08.2000 14. 11.2000 16. 04.2002
CN 1290458 A	04. Apr. 2001	CA 2318038 A WO 0035208 A AU 1693200 A KR 2000038962 A BR 9908209 A EP 1055335 A US 6275186 B AU 738612 B JP 2002532979 T RU 2193286 C	15. 06.2000 15. 06.2000 26.06.2000 05.07.2000 28. 11.2000 29. 11.2000 14. 08.2001 20. 09.2001 02. 10.2002 20. 11.2002
CN 1413057 A	23. Apr. 2003	NONE	
WO 0065731 A1	02. Nov. 2000	AU 3343799 A AU 3986600 A EP 1074156 A	08.11.1999 10.11.2000 07. 02.2001

国际检索报告

国际申请号

PCT/CN03/00630

A. 主题的分类

IPC7 H04Q 7/32

按照国际专利分类表(IPC)或者同时按照国家分类和 IPC 两种分类

B. 检索领域

检索的最低限度文献(标明分类体系和分类号)

IPC7 H04Q

包含在检索领域中的除最低限度文献以外的检索文献

在国际检索时查阅的电子数据库(数据库的名称和, 如果实际可行的, 使用的检索词)

EPODOC, WPI, PAJ, CNPAT: 移动, 定位, 基站, 直放站, 中继站, TDOA

C. 相关文件

类型*	引用文件, 必要时, 指明相关段落	相关的权利要求编号
X	CN 1228908 A (诺基亚电信公司), 15.9 月 1999 (15.09.99), 说明书第 3 页—第 4 页, 第 8 页	1, 13
Y		2
Y	CN 1290458 A (三星电子株式会社), 04.4 月 2001 (04.04.01), 摘要	2
PY	CN 1413057 A (华为技术有限公司), 23.4 月 2003 (23.04.03), 摘要	2
A	WO 0065731 A1 (NCT LTD), 02.11 月 2000 (02.11.00), 全文	1—22

 其余文件在 C 栏的续页中列出。 见同族专利附件。

* 引用文件的专用类型:

"A" 明确叙述了被认为不是特别相关的一般现有技术的文件

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"&" 同族专利成员的文件

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传真号: 86-10-62019451

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国际检索报告
关于同族专利成员的情报

国际申请号
PCT/CN03/00630

检索报告中引用的专利文件	公布日期	同族专利成员	公布日期
CN 1228908 A	15. 9 月 1999	FI 962972 A WO 9805172 A AU 3346997 A NO 990286 A EP 0976281 A AU 723037 A JP 2000515347 T US 6373833 A	26.01.1998 05. 02.1998 20.02.1998 23.03.1999 02. 02.2000 17. 08.2000 14. 11.2000 16. 04.2002
CN 1290458 A	04. 4 月 2001	CA 2318038 A WO 0035208 A AU 1693200 A KR 2000038962 A BR 9908209 A EP 1055335 A US 6275186 B AU 738612 B JP 2002532979 T RU 2193286 C	15. 06.2000 15. 06.2000 26.06.2000 05.07.2000 28. 11.2000 29. 11.2000 14. 08.2001 20. 09.2001 02. 10.2002 20. 11.2002
CN 1413057 A	23. 4 月 2003	无	
WO 0065731 A1	02. 11 月 2000	AU 3343799 A AU 3986600 A EP 1074156 A	08.11.1999 10.11.2000 07. 02.2001